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| 09/888,385      | 06/26/2001  | Dennis G. Thibedeau  | 10473-784           | 9489             |

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Washington, DC 20005-3096

EXAMINER

HE, AMY

| ART UNIT | PAPER NUMBER |
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2858

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/888,385

Applicant(s)

THIBEDEAU ET AL.

Examiner

Amy He

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on amendment dated September 12, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. Figure 4 is objected to because descriptive text label are required for box numbers 312, 314, 316, 332 and 352. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Hulls et al. (U. S. Patent No. 4,178, 546).

Referring to claim 1, Hulls discloses a method for evaluating operation of an alternator comprising:

detecting a frequency component (ripple frequency) of an alternator output signal representative of a rectified output of the alternator (column 2, lines 14-15);

comparing the frequency component ( $f/6$ , 180 Hz, column 2, lines 21-26) of the alternator output signal with a threshold frequency ( $f$ , 1080Hz, column 2, lines 1-33);

and

evaluating operation of a rectifying circuit of the alternator based on a result of the comparing step (column 2, lines 1-33).

Referring to claim 3, Hulls discloses the method of claim 1, wherein if the frequency component is smaller than the threshold frequency component, the alternator is determined as defective (if a subharmonic frequency of  $f/6$  is identified, which is smaller than the threshold frequency  $f$ ; column 2, lines 1-33).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hulls et al. (U. S. Patent No. 4,178, 546), in view of Sievers et al. (U.S. Patent No: 4, 379, 990).

Referring to claim 2, Hulls does not specifically disclose maintaining the rotational speed of the alternator at a predetermined level before detecting the frequency component of the alternator output signal.

Sievers suggests that if the alternator rotational speed is too low, it may cause an inaccurate detection (column 14, lines 62-66).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Hulls to maintain the alternator rotation speed above a

certain threshold value, as suggested by Sievers, so as to measure the frequency component more accurately.

4. Claims 1, 4-10 and 16-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sievers et al. (U.S. Patent No: 4, 348, 629).

Referring to claims 4-6, 9-10, 16, 18-20, 23 and 27-30, Sievers discloses a system for evaluating the operation of an alternator installed in an automotive vehicle and driven by the engine of the automotive vehicle, the system comprising:

a terminal/means ( Vs in Figure 2 or A+ in Figure 8) for receiving an alternator output voltage signal representative of an rectified output of the alternator from terminals of a battery coupled to the alternator;

an adaptive threshold device/means (variable threshold, column 12, lines 64-67; or 558, 590 in Figure 8 which tract the alternator output signal A+) for generating a reference threshold based on the level of the alternator output signal according to a predetermined rule;

a comparator/ frequency detection device/means (comparators of 88 in Figure 2 or 568 and 578 in Figure 8 ) for comparing the level of the alternator output signal with the reference threshold (variable threshold or output of 558 in Figure 8) and detecting/generating a frequency component (output of ripple detector 88 or output of stator detector 92) of the alternator output signal based on the comparison result;

a controller/means (86 and 102 in Figure 2 ) for comparing the frequency component of the alternator output signal to a threshold (predetermined empirical

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analysis of fault states, column 6, lines 22-25), and generating an indication signal based on a result of the comparison (column 6, lines 5-35); and

an indication device/means(104) responsive to the content of the indication signal for indicating the operation of a rectifying circuit of the alternator(abstract; column 17, lines 64-68).

Still referring to claims 4-6, 9-10, 16, 18-20, 23 and 27-30, Sievers does not disclose the controller means (86 and 102) comparing with a threshold frequency. However, It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Sievers to find the frequencies of the frequency component signal (the ripple detector output or the stator detector output) and compare them with a stored threshold frequency, for easily determining whether or not the rectified diodes circuit of the alternator are functioning correctly, since if a diode fails, the output from the ripple detector and the stator detector will have a different frequency waveform as compared to an expected frequency waveform (column 18, lines 27-33).

Referring to claims 1 and 25-26, they are the method claims corresponding to the system claims 4 and 27. They are rejected for the same reasons as stated above for the rejection of the system claims.

Referring to claims 7-8, 17, 21-22 and 24, Sievers does not disclose that the reference threshold is an average or a value between a peak and a valley signal level of the alternator output signal. A person of ordinary skill in the art would find it obvious to modify Sievers to use an average or a value between a peak and a valley signal level of the alternator output signal as the reference threshold Ssince it has been held to be

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within the general skill of a worker in the art to select a known tool for a known purpose on the basis of its suitability for the intended use as a matter of obvious design choice *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA).

5. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sievers et al. (U.S. Patent No: 4, 348, 629), in view of Bertness (U.S. Patent No: 6,331,762).

Referring to claims 11, 12 and 14, Sievers discloses the system of claim 10. Sievers does not specifically disclose a database, accessible by the controller, including threshold frequencies corresponding to more than one vehicle model, as well as threshold frequencies corresponding to more than one engine or alternator rotational speeds.

Bertness discloses a database/memory (memory 40), accessible by the controller (microprocessor 12 or 22), which could be used to store various threshold corresponding to more than one vehicle model, as well as various engine or motor rotational speeds (column 9, lines 54-66; column 8, lines 1-10; column 11, lines 23-30; column 13, lines 23-26; lines 44-49).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Sievers to use a database, accessible by the controller, including threshold frequencies corresponding to more than one vehicle model, as well as threshold frequencies corresponding to more than one engine or alternator rotational

speed, so that the alternator tester could be used for different vehicle models, different engine or alternator speed.

Referring to claims 13 and 15, Sievers discloses the system of claims 4 and 10, except for an alternator output signal received from a vehicle computer, or a data processing system.

Bertness discloses an alternator output signal, received from a vehicle computer, or a data processing system, installed on the automotive vehicle (the microprocessor, column 15, claim 9).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Sievers to obtain an alternator output signal from a vehicle computer installed on the automotive, as taught by Bertness, to improve efficiency of the evaluation.

### ***Response to Arguments***

6. Applicant's arguments with respect to claim 1-24 have been considered but are moot in view of the new ground(s) of rejection.

### ***Allowable Subject Matter***

7. The indicated allowability of claims 16-17 and 23-24 are withdrawn in view of the newly discovered reference(s) to Sievers et al. (U.S. Patent No: 4, 348, 629).


### ***Conclusion***



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (703) 305-3360. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on 703-308-0750. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

  
AH  
November 25, 2003

  
N. Le  
Supervisory Patent Examiner  
Technology Center 2800